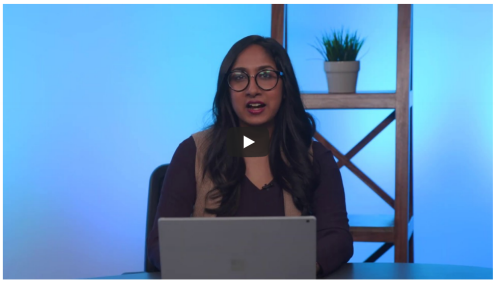
What is Machine Learning?

One of our goals in this lesson is to help you get a clearer, more specific understanding of what machine learning is and how it differs from other approaches.

Let's start with a classic definition. If you look up the term in a search engine, you might find something like this:

> ***Machine learning*** *is a data science technique used to extract patterns from data, allowing computers to identify related data, and forecast future outcomes, behaviors, and trends.*

Let's break that down a little. One important component of machine learning is that we are taking some *data* and using it to *make predictions* or *identify important relationships*. But looking for patterns in data is done in traditional data science as well. So how does machine learning differ? In this next video, we'll go over a few examples to illustrate the difference between machine learning and traditional programming.



QUESTION 1 OF 5

What type of approach is shown in this image?

- [x] Traditional Programming
- [ ] Machine Learning

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QUESTION 2 OF 5

What type of approach is shown in this image?

- [ ] Traditional Programming
- [x] Machine Learning

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QUESTION 3 OF 5

Imagine you want to create a function that multiplies two numbers together (e.g., given the inputs `2` and `3`, the function will generate the output `6`).

What approach is best suited to this problem?

- [x] Traditional Programming
- [ ] Machine Learning

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QUESTION 4 OF 5

Now imagine that you have some images that contain handwritten numbers. You want to create a program that will recognize which number is in each picture, but you're not sure exactly what characteristics can be used to best tell the numbers apart.

Which is the best approach for creating this program?

- [ ] Traditional programming
- [x] Machine learning

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QUESTION 5 OF 5

In *traditional programming*, the inputs of hard-coded rules and data are used to arrive at the output of answers, but in *machine learning* the approach is quite different.

Mark all of the options below that are true statements about **machine learning**.

- [x] Data is input to train an algorithm
- [x] Historical answers are input to train an algorithm
- [ ] Rules are explicitly programmed
- [x] Rules are the output learned by the algorithm

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NEXT